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GER 1999-08-05 19803885 KoOhlkreisanordnugn for a
floOssigkeitsgekoOhle Brennkraftmaschine

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MoOnchen DE**PATENT NUMBER**- 19803885/DE-A1**PATENT APPLICATION NUMBER**- 19803885**DATE FILED**- 1998-01-31**DOCUMENT TYPE**- A1, DOCUMENT LAID OPEN (FIRST
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F01P00716E; F01P00716D**PATENT APPLICATION PRIORITY**- 19803885, A**PRIORITY COUNTRY CODE**- DE, Germany, Ged. Rep. of**PRIORITY DATE**- 1998-01-31**FILING LANGUAGE**- German**LANGUAGE**- German NDN- 203-2240-0070-3**BEST AVAILABLE COPY**

For a cool circle order of a liquid-chilled Brennkraftmaschine, it is proposed by cylinder head and crank casings to the attainment of favorable refrigerant temperatures in separately durchstroemten cool coats that an ansaugseitig stands foerderseitig with a course of a Drei-Wege-Thermostaten angeordneten in one heat swapper bypass management of connected pump with an auslaoáseitigen longitudinal canal of the cool coat in the cylinder head durchstroemten to an einlaoáseitigen longitudinal canal crosswise in connection and the einlaoáseitige longitudinal canal over a connection management with her/it heat swapper bypass management as well as this heat swapper heat management interconnected is, with what at least he/it crank casing coolness coat over one by means of an electronic control unit kennfeldgesteuertes in, or Mehrwegeventil with one a heat swapper including expresses cool circle middle, or directly verbindbar is.

EXEMPLARY CLAIMS- 1. Cool circle order for a liquid-chilled Brennkraftmaschine -. the Brennkraftmaschine with what, 2, 2 ') in the cylinder head (3) and in the crank casing (4) in each case controlled separately as well from one single pump (5) of promoted refrigerants separately durchstroemte cool coats (6, 7) includes, and -. the demand-wise one(s) into the cylinder head - cool coat (6) of promoting pump (5) ansaugseitig with one over a three ways. valve (8) of gesteuerten/geregelten bypass management (9) to one with this over a heat management (10) and a reverse management (11) of interconnected heat swappers (12) in an outer cool circle (13) in connection stands, with what -. the crank casings - cool coat (7) over a rateable valve, 14, 14 ') with the more outer cool circle (13) separately verbindbar is im/am crank casing (4), marked by it, with achievement of a vorbestimmten temperature -. that the ansaugseitig with a course (15) an in the bypass management (9) arranged three. ways. thermostats (16) interconnected pump (5) foerderseitig with an auslaoáseitigen longitudinal canal (17) the coolness coat (6) in the cylinder head (3) durchstroemten to an einlaoáseitigen longitudinal canal (18) crosswise in connection stands, and -. the einlaoáseitige longitudinal canal (18) over a connecting lead (19) with the bypass management (9) and the heat swapper. heat management (10) interconnected is, with what. at least the crank casings - cool coat (7) over one by means of an electronic control unit (20) kennfeldgesteuertes in -. or increase. ways. valve, 14, 14 ') with the more outer cool circle (13) middle -. or directly verbindbar is. 2. Cool circle order of claim 1, marked by it, -. that the cool coat (7) of the crank casing (4) into separate, einlaoáseitig and auslaoáseitig qualified chambers, 7 ', 7 ") is subdivided, and -. each chamber, 7 ', 7 ") with

the associated longitudinal canal (17, 18) the cool coat (6) in
the cylinder head (3) over throttle connections (21)
interconnected

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